AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-4 (canceled).

5. (original): A process for producing an optical semiconductor device comprising a plurality of semiconductor lasers which oscillate longitudinal single mode laser beams with different wavelengths and have been simultaneously formed on a single substrate, said process comprising the steps of:

coating a resist on the substrate;

exposing the surface of the resist to a pattern of a plurality of diffraction gratings for setting pitches corresponding respectively to oscillation wavelengths for the plurality of semiconductor lasers and for setting heights which provide an identical coupling coefficient independently of the oscillation wavelength;

etching the substrate in such a manner that the level of etching per unit time is identical;

patterning a mask to give a predetermined shape according to the arrangement-of the diffraction gratings;

forming a laser active layer on each of the diffraction gratings using the mask having a predetermined shape by

forming an electrode on each of the top surface of the laser active layer and the backside of the substrate.

6. (original): The process according to claim 5, wherein a larger height of the diffraction grating is adopted for a laser having a smaller coupling coefficient when the diffraction grating is unchanged.

7. (original): The process according to claim 5, wherein the height of the diffraction grating is set by the opening width of the resist.

8. (original): The process; according to claim 5, wherein a narrower resist opening width is adopted for a laser having a smaller coupling coefficient when the diffraction grating is unchanged.

9. (original): The process according to claim 5, wherein the patterning to give a predetermined shape involves patterning of electro-absorption optical modulators coupled respective to the semiconductor lasers, and

the selective MOVPE growth involves selective MOVPE growth for the formation of an absorption layer in the electro-absorption optical modulator.